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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/597,617

08/25/2006

Tae Kyung Yoo

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EXAMINER

PRENTY, MARK V

ART UNIT

PAPER NUMBER

2822

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/597,617	YOO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	MARK PRENTY	2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-8 and 10-12 is/are rejected.
- 7) ☒ Claim(s) 3,9 and 13-20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>August 1, 2006</u> .  | 6) <input type="checkbox"/> Other: _____                          |

This Office Action is in response to the papers filed on August 25, 2006.

Claim 1 is objected to because "wiht" (last line) should read "with."

Claims 2-20 depend on independent claim 1 and are thus similarly objected to.

Claim 3 is further objected to because "multiple-quantum structure" (line 2) should read "multiple-quantum-well structure."

Claims 1, 2, 4-8 and 10-12 are rejected under 35 U.S.C. 102(e) as being anticipated by United States Patent 7,193,246 to Tanizawa et al. (Tanizawa).

As to independent claim 1, Tanizawa discloses a III-nitride compound semiconductor light emitting device (see the entire reference, including the Fig. 8 disclosure) comprising: an active layer 7 emitting light and being interposed between a lower contact layer 4 made of n-GaN (see column 36, lines 34-39) and an upper contact layer 9 made of p-type III-nitride compound semiconductor layer (see column 35, line 32), an n-type electrode layer 12 formed on the lower contact layer, a lattice mismatch-reducing layer 305a made of  $\text{In}_x\text{Ga}_{1-x}\text{N}$  ( $x > 0$ ) (see column 37, lines 4-10), grown on the lower contact layer and having a thickness of 200-1000Å (see column 38, lines 1-6), an electron supply layer 305b made of  $\text{n-Al}_y\text{Ga}_{1-y}\text{N}$  ( $y \geq 0$ ) (see column 35, lines 26-27, and column 37, lines 4-10) and grown on the lattice mismatch-reducing layer, and a crystal restoration layer 305c made of  $\text{In}_z\text{Ga}_{1-z}\text{N}$  ( $z > 0$ ) (see column 37, lines 4-10), grown on the electron supply layer and in contact [with] the active layer (see column 37, lines 1-3).

Claim 1 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Tanizawa.

As to dependent claim 2, Tanizawa's active layer 7 has a single-quantum-well or multiple-quantum-well structure comprising quantum well layer made of  $\text{In}_x\text{Ga}_{1-x}\text{N}$  (see column 41, lines 60-63).

Claim 2 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Tanizawa.

As to dependent claim 4, Tanizawa's lattice mismatch-reducing layer 305a is undoped (see column 35, line 26).

Claim 4 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Tanizawa.

As to dependent claim 5, the indium content of Tanizawa's lattice mismatch-reducing layer 305a is  $0 < x \leq 0.4$  (see column 37, lines 4-10).

Claim 5 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Tanizawa.

As to dependent claim 6, the Al content of Tanizawa's electron supply layer 305b is  $0 < y \leq 0.2$  (see column 37, lines 4-10).

Claim 6 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Tanizawa.

As to dependent claim 7, Tanizawa's electron supply layer 305b has a thickness of 10-500Å (see column 38, lines 19-22).

Claim 7 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Tanizawa.

As to dependent claim 8, the doping concentration of Tanizawa's electron supply layer 305b is  $5 \times 10^{17}$ - $10 \times 10^{21}$  atoms/cm<sup>3</sup> (see column 39, lines 7-18).

Claim 8 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Tanizawa.

As to dependent claim 10, Tanizawa's crystal restoration layer 305c has a thickness of 10-500Å (see column 38, lines 38-41).

Claim 10 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Tanizawa.

As to dependent claim 11, Tanizawa's crystal restoration layer 305c is undoped (see column 35, line 27).

Claim 11 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Tanizawa.

As to dependent claim 12, the indium content of Tanizawa's crystal restoration layer 305c is  $0 < x \leq 0.4$  (see column 37, lines 4-10).

Claim 12 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Tanizawa.

Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable over the prior art of record if corrected (see the above objection to claim 3) and rewritten in independent form including all of the limitations of corrected independent claim 1.

Claim 9 and 13-20 are objected to as being dependent upon a rejected base claim, but would be allowable over the prior art of record if rewritten in independent form

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including all of the limitations of corrected independent claim 1 and any intervening claims.

The prior art of record does not disclose or suggest the allowable III-nitride compound semiconductor light emitting device as a whole.

Registered practitioners can telephone the examiner at (571) 272-1843. Any voicemail message left for the examiner must include the name and registration number of the registered practitioner calling, and the Application/Control (Serial) Number. Technology Center 2800's general telephone number is (571) 272-2800.

/MARK PRENTY/

Primary Examiner, Art Unit 2822